

2. STUDY AREA

The Springbok Flats region extend to about 100 km north of Pretoria. Its favourable climate and black Arcadia soil ('turf') make it one of the major crop producing areas in the Transvaal. In spring large tracts of land are planted to cotton, sorghum, sunflower and maize, as main crops. In autumn, winter wheat is planted. These crops are cultivated mainly under dry-land conditions with a small percentage under flood- or sprinkler-irrigation.

The general weather the Springbok Flats experienced from the 1970/71 to 1984/85 sunflower season is presented in figures 1 to 3. Data are summarized from the S.A. Weather Bureau Report on Meteorological Data (1970 - 1977) and Monthly Weather Report (1978 - 1985) as recorded at Towoomba Research Station (24°54'S, 28°20'E; Altitude 1143m).

In general the Springbok Flats experiences hot summers, as it is protected by the Highveld from cold winds. Mild, dry winters is experienced, though temperature could be minus 7°C on winter mornings. The annual rainfall is 622mm. Heavy down pours occur, usually accompanied by thunder storms. In the late spring hail can be severe. The region is almost frost-free, with frost only on irrigation lands.

Studies on commercial sunflower pollination ecology were

conducted on farms surrounding Settlers (27°57'S, 28°32'E), in the Springbok Flats, 20 km east of Towoomba Research Station. A study site was chosen in the Springbok Flats, one of the largest commercial sunflower producing areas in the Transvaal. Furthermore, the severe losses due to hollow seededness during 1979 - 1981, which led to low yields, in spite of exceptionally good weather, favoured the Springbok Flats as the study area.

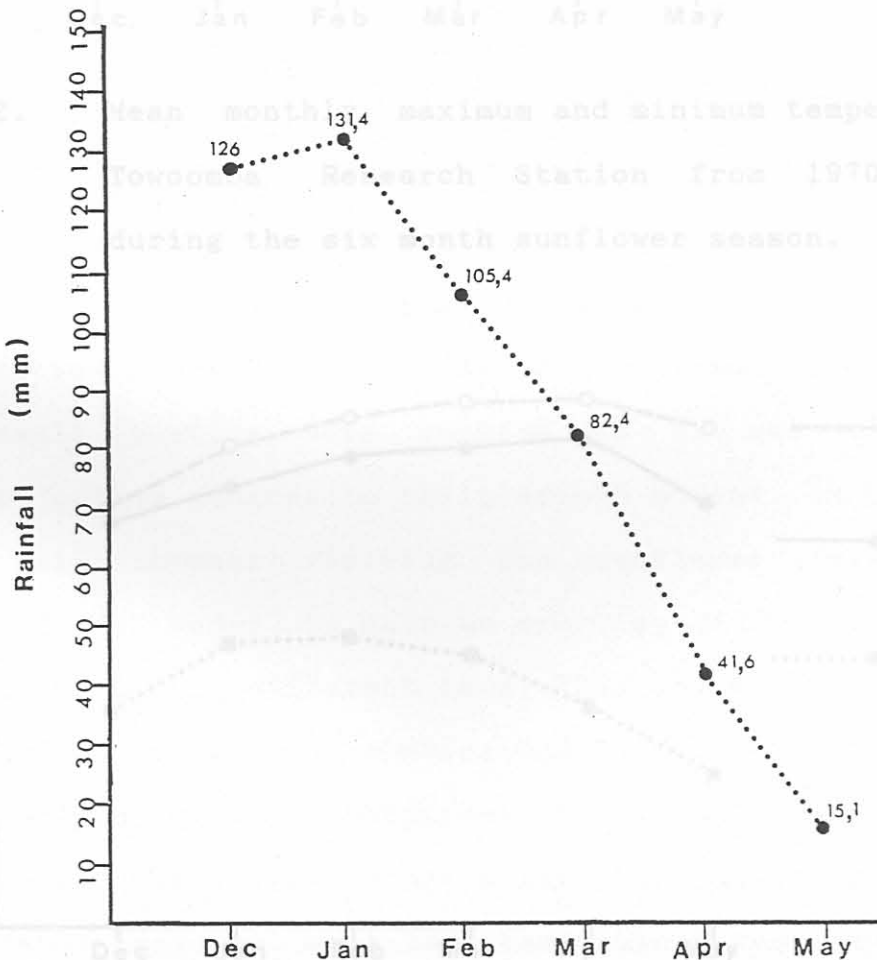


Fig. 1. Mean monthly rainfall at Towoomba Research Station during 1970 to 1985 for the six month sunflower season.

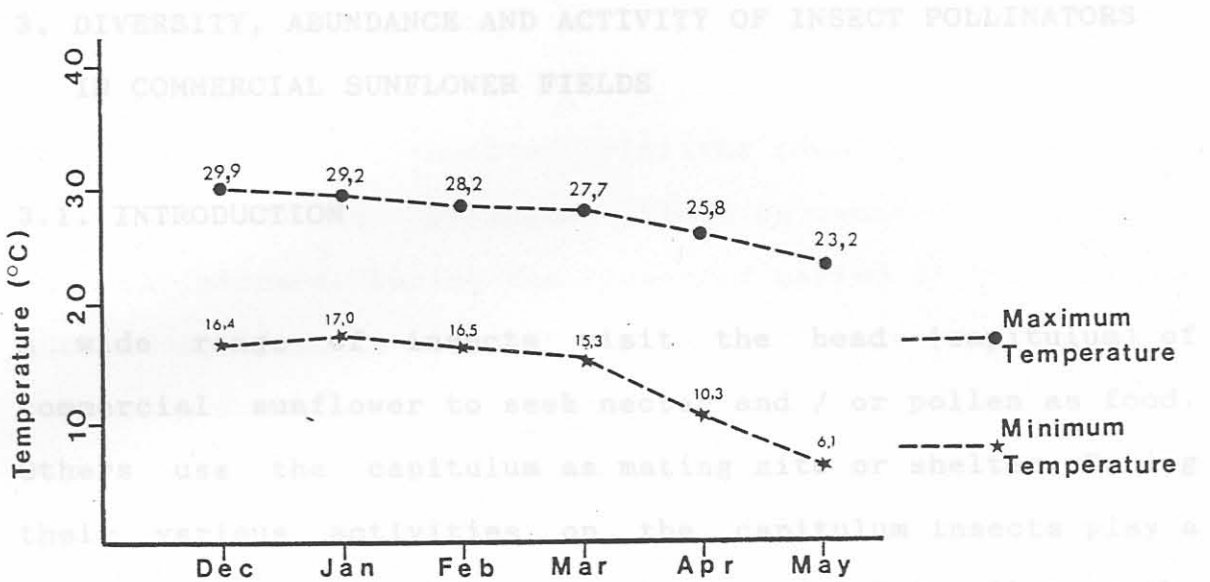


Fig. 2. Mean monthly maximum and minimum temperatures at Towoomba Research Station from 1970 to 1985 during the six month sunflower season.

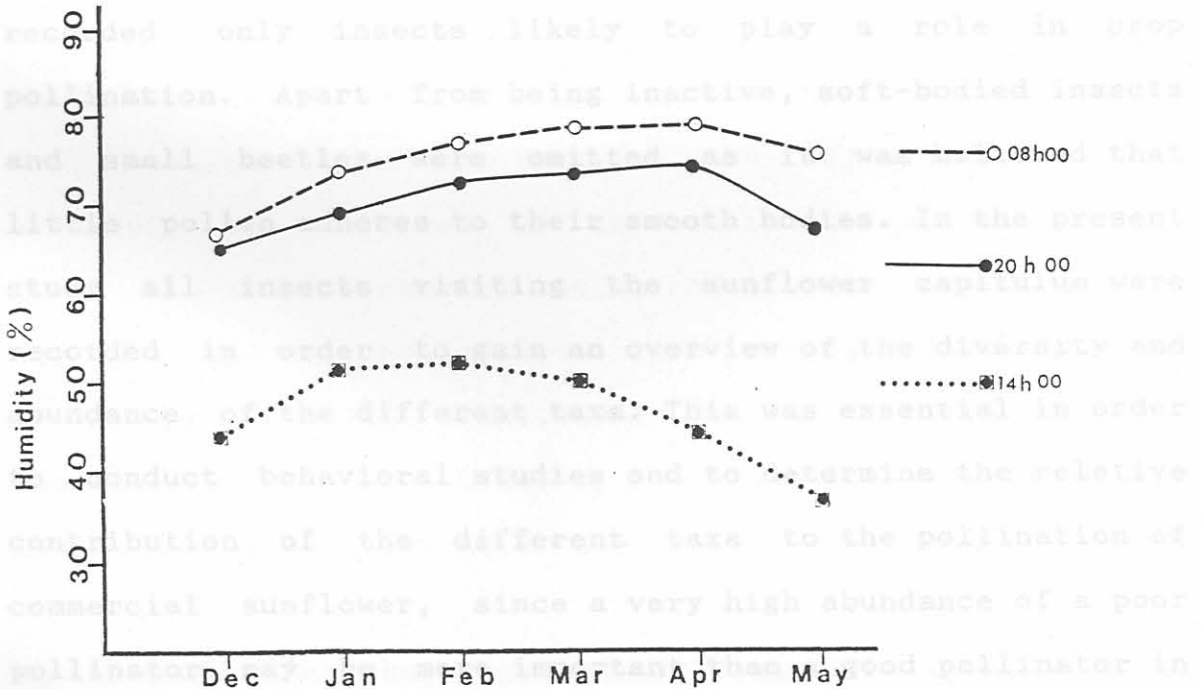


Fig. 3. Mean monthly relative humidity at Towoomba Research Station from 1970 to 1985 during the six month sunflower season.